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Albert J. Fasulo, II, Office of Patent Counsel
The Johns Hopkins University
Applied Physics Laboratory
11100 Johns Hopkins Road, Mail Stop 7-156
Laurel, MD 20723-6099

EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	
ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,065	MURRAY ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21-30* is/are allowed.

6)☒ Claim(s) *1-3,5-8,12-20 and 31* is/are rejected.

7)☒ Claim(s) *4 and 9-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/06/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Dong et al. ('Chloride Chemical Sensor Based on an organic Conducting Polymer, *Analyst*, October 1988, vol. 113) ("Dong").

Addressing claim 1, Dong discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (second column on page 1525, lines 2-6, wherein the electrochemical cell is represented); and

a polymer film (abstract – polypyrrole polymer film) imprinted for uptake of chloride ions (*Effect of Cl⁻ doping ion concentration in the electrolyte solution* on page 1525, bridging to page 1526 and Figures 1 and 2 and Table 1),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Electrochemical Polymerisation on page 1525 – "The polypyrrole (PPy) polymer film was prepared on a glassy carbon (GC) surface ...").

As for the polymer film being imprinted for uptake of chloride ions *under alkaline conditions*, although as noted by Applicants Dong's sensor is relatively constant from pH 2.5 to 7 (paragraph [0011] of Applicants' specification), this does not mean that it is inoperative at a pH above 7. In fact Figure 5 shows a data point above pH = 8. The sensor may have to be recalibrated for use at pH 7, but as shown by Figure 5 it can still measure chloride ion in an alkaline medium.

Addressing claim 2, as noted in the rejection of claim 1 Dong discloses measuring sensor response to chloride ion at a pH above 8.

3. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Sjöberg et al. ("All-Solid-State Chloride-Selective Electrode Based on Poly(3-octylthiophene) and tridodecylmethylammonium Chloride, *Electroanalysis* 1999, 11, No. 10-11) ("Sjöberg")

Addressing claim 1, Sjöberg discloses a sensor for measuring chloride ion concentration in a

medium (title and abstract), comprising

a pair of electrodes (abstract and **2.3 Potentiometric Measurements**); and

a polymer film (abstract – poly(3-octylthiophene)) imprinted for uptake of chloride ions (abstract and **2.2 Electrode Preparation**) under alkaline conditions (**2.3 Potentiometric Measurements** – 2.3.2 Redox and pH Sensitivity and **3.2 Redox and pH Sensitivity**),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (**2.2. Electrode Preparation** and **2.3 Potentiometric Measurements**)

Addressing claims 2 and 3, Sjöberg discloses sensor response to chloride ion from pH = 2 to 10. See Figure 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5-8 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dong et al. ('Chloride Chemical Sensor Based on an organic Conducting Polymer, *Analyst*, October 1988, vol. 113) ("Dong") in view of Guiseppi-Elie (US 5,766,934).

Addressing claim 5, Dong discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (second column on page 1525, lines 2-6, wherein the electrochemical cell is represented); and

a polymer film (abstract – polypyrrole polymer film) imprinted for uptake of chloride ions (*Effect of Cl⁻ doping ion concentration in the electrolyte solution* on page 1525, bridging to page 1526 and Figures 1 and 2 and Table 1),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Electrochemical Polymerisation on page 1525 – "The polypyrrole (PPy) polymer film was prepared on a glassy carbon (GC) surface ...").

As for the polymer film being imprinted for uptake of chloride ions *under alkaline conditions*, although as noted by Applicants Dong's sensor is relatively constant from

pH 2.5 to 7 (paragraph [0011] of Applicants' specification), this does not mean that it is inoperative at a pH above 7. In fact Figure 5 shows a data point above pH = 8. The sensor may have to be recalibrated for use at pH 7, but as shown by Figure 5 it can still measure chloride ion in an alkaline medium.

. In Dong the film is only in contact with one electrode as the measurement electrode is distinct from the reference electrode. See in Dong **Experimental – Potential measurement of the Film Electrode** on page 1525.

Guiseppi-Elie discloses a sensor for measuring concentration in a medium (abstract and Figure 11), comprising

a pair of electrodes (Figures 1A-C); and

a polymer film (8,10 in Figure 1C and col. 5:4-19) (note that Guiseppi-Elie discloses polypyrrole as a polymer film (claim 7)),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Figure 1C).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the film in contact with the pair of electrodes as taught by Guiseppi-Elie in the invention of Dong because as taught by Guiseppi-Elie all the electrode elements can be microfabricated onto the same sensor chip "thereby eliminating the need for an externally placed, free-standing reference electrode and an externally placed, free-standing auxiliary or counter electrode. Such a sensor may be readily fabricated as a convenient, low cost, disposable sensor suited to field use." See col. 4:62 – col. 5:2.

Addressing claim 6, for the additional limitation of this claim see **Experimental – Potential Measurement of the Film Electrode** on page 1525 of Dong.

Addressing claim 7, for the additional limitation of this claim note layer 8 in Figure 1C of Guiseppi-Elie and see col. 5:4-19 in Guiseppi-Elie.

Addressing claim 8, for the additional limitation of this claim see in Dong **Study of the Response Mechanism** on page 1527.

Addressing claim 12, for the additional limitation of this claim see in Guiseppi-Elie Figure 1A.

Addressing claim 13, Dong discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (second column on page 1525, lines 2-6, wherein the electrochemical cell is represented); and

a conductive polymer film (abstract – polypyrrole polymer film) imprinted for uptake of chloride ions (*Effect of Cl^- doping ion concentration in the electrolyte solution* on page 1525, bridging to page 1526 and Figures 1 and 2 and Table 1),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Electrochemical Polymerisation on page 1525 – "The polypyrrole (PPy) polymer film was prepared on a glassy carbon (GC) surface ...").

In Dong the film is only in contact with one electrode as the measurement electrode is distinct from the reference electrode. See in Dong **Experimental – Potential measurement of the Film Electrode** on page 1525.

Guiseppi-Elie discloses a sensor for measuring concentration in a medium (abstract and Figure 11), comprising

a pair of electrodes (Figures 1A-C); and

a polymer film (8,10 in Figure 1C and col. 5:4-19) (note that Guiseppi-Elie discloses polypyrrole as a polymer film (claim 7)),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Figure 1C).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the film in contact with the pair of electrodes as taught by Guiseppi-Elie in the invention of Dong because as taught by Guiseppi-Elie all the electrode elements can be microfabricated onto the same sensor chip "thereby eliminating the need for an externally placed, free-standing reference electrode and an externally placed, free-standing auxiliary or counter electrode. Such a sensor may be readily fabricated as a convenient, low cost, disposable sensor suited to field use." See col. 4:62 – col. 5:2.

As for the film being disposed or contact with the medium see Figure 1C in Guiseppi-Elie.

As for the electrical conductively of the film depending on an amount of chloride ions taken up by the film see in Dong **Study of the Response Mechanism** on page 1527.

Addressing claims 14-16, 18, and 19, for the additional limitations of these claims see in Dong *Detection limit and slope* on page 1527. Although the sensitivity and detection limit are expressed in morality instead of weight %, the values disliked by Dong appear to correspond closely to those claimed by Applicants.

Addressing claim 17, Dong discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (second column on page 1525, lines 2-6, wherein the electrochemical cell is represented); and

a conductive polymer film (abstract – polypyrrole polymer film) imprinted for uptake of chloride ions (*Effect of Cl^- doping ion concentration in the electrolyte solution* on page 1525, bridging to page 1526 and Figures 1 and 2 and Table 1),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Electrochemical Polymerisation on page 1525 – "The polypyrrole (PPy) polymer film was prepared on a glassy carbon (GC) surface ...").

As for the polymer film being imprinted for uptake of chloride ions *under alkaline conditions*, although as noted by Applicants Dong's sensor is relatively constant from pH 2.5 to 7 (paragraph [0011] of Applicants' specification), this does not mean that it is inoperative at a pH above 7. In fact Figure 5 shows a data point above pH = 8. The sensor may have to be recalibrated for use at pH 7, but as shown by Figure 5 it can still measure chloride ion in an alkaline medium.

In Dong the film is only in contact with one electrode as the measurement electrode is distinct from the reference electrode. See in Dong **Experimental – Potential measurement of the Film Electrode** on page 1525.

Guiseppi-Elie discloses a sensor for measuring concentration in a medium (abstract and Figure 11), comprising

a pair of electrodes (Figures 1A-C); and

a polymer film (8,10 in Figure 1C and col. 5:4-19) (note that Guiseppi-Elie discloses polypyrrole as a polymer film (claim 7)),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Figure 1C).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the film in contact with the pair of electrodes as taught by Guiseppi-Elie in the invention of Dong because as taught by Guiseppi-Elie all the electrode elements can be micro fabricated onto the same sensor chip "thereby eliminating the need for an externally placed, free-standing reference electrode and an externally

placed, free-standing auxiliary or counter electrode. Such a sensor may be readily fabricated as a convenient, low cost, disposable sensor suited to field use." See col. 4:62 – col. 5:2.

As for the film being disposed or contact with the medium see Figure 1C in Guiseppi-Elie.

As for the electrical conductively of the film depending on an amount of chloride ions taken up by the film see in Dong **Study of the Response Mechanism** on page 1527.

8. Claims 5-8 and 12-20, are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Sjöberg et al. ("All-Solid-State Chloride-Selective Electrode Based on Poly(3-octylthiophene) and tridodecylmethylammonium Chloride, *Electroanalysis* 1999, 11, No. 10-11) ("Sjöberg") in view of Guiseppi-Elie (US 5,766,934).

Addressing claim 5, Sjöberg discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (abstract and **2.3 Potentiometric Measurements**); and

a polymer film (abstract – poly(3-octylthiophene)) imprinted for uptake of chloride ions (abstract and **2.2 Electrode Preparation**) under alkaline conditions (**2.3 Potentiometric Measurements** – 2.3.2 Redox and pH Sensitivity and **3.2 Redox and pH Sensitivity**),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (**2.2. Electrode Preparation** and **2.3 Potentiometric Measurements**)

Guiseppi-Elie discloses a sensor for measuring concentration in a medium (abstract and Figure 11), comprising

a pair of electrodes (Figures 1A-C); and

a polymer film (8,10 in Figure 1C and col. 5:4-19) (note that Guiseppi-Elie discloses polypyrrole as a polymer film (claim 7)),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Figure 1C).

In Sjöberg the film is only in contact with one electrode as the measurement electrode is distinct from the reference electrode. See in Sjöberg **2.3 Potentiometric measurements** on page 821.

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the film in contact with the pair of electrodes as taught by Guiseppi-Elie in the invention of Sjöberg because as taught by Guiseppi-Elie all the electrode elements can be microfabricated onto the same sensor chip "thereby eliminating the need for an externally placed, free-standing reference electrode and an externally placed, free-standing auxiliary or counter electrode. Such a sensor may be readily fabricated as a convenient, low cost, disposable sensor suited to field use." See col. 4:62 – col. 5:2.

Addressing claim 6, for the additional limitation of this claim see **2.3 Potentiomeric Measurements** in Sjöberg.

Addressing claim 7, for the additional limitation of this claim note layer 8 in Figure 1C of Guiseppi-Elie and see col. 5:4-19 in Guiseppi-Elie.

Addressing claim 8, for the additional limitation of this claim see in Sjöberg **3. Results and Discussion – 31. Sensitivity to Cl^-**.

Addressing claim 12, for the additional limitation of this claim see in Guiseppi-Elie Figure 1A.

Addressing claim 13, Sjöberg discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (abstract and **2.3 Potentiometric Measurements**); and

a conductive polymer film (abstract – poly(3-octylthiophene)) imprinted for uptake of chloride ions (abstract and **2.2 Electrode Preparation**),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (**2.2. Electrode Preparation** and **2.3 Potentiometric Measurements**)

Guiseppi-Elie discloses a sensor for measuring concentration in a medium (abstract and Figure 11), comprising

a pair of electrodes (Figures 1A-C); and

a polymer film (8,10 in Figure 1C and col. 5:4-19) (note that Guiseppi-Elie discloses polypyrrole as a polymer film (claim 7)),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Figure 1C).

In Sjöberg the film is only in contact with one electrode as the measurement electrode is distinct from the reference electrode. See in Sjöberg **2.3 Potentiometric measurements** on page 821.

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the film in contact with the pair of electrodes as taught by Guiseppi-Elie in the invention of Sjöberg because as taught by Guiseppi-Elie all the electrode elements can be microfabricated onto the same sensor chip "thereby eliminating the need for an externally placed, free-standing reference electrode and an externally placed, free-standing auxiliary or counter electrode. Such a sensor may be readily fabricated as a convenient, low cost, disposable sensor suited to field use." See col. 4:62 – col. 5:2.

As for the film being disposed or contact with the medium see Figure 1C in Guiseppi-Elie.

As for the electrical conductively of the film depending on an amount of chloride ions taken up by the film see in Sjöberg **3. Results and Discussion – 3.1. Sensitivity to Cl^-** on page 822.

Addressing claims 14-16 and 18-19, for the additional limitations of these claims see in Sjöberg **3. Results and Discussion – 3.1. Sensitivity to Cl^-** .on page 822. Although the sensitivity and detection limit are expressed in morality instead of weight %, the values disliked by Dong appear to correspond closely to those claimed by Applicants.

Addressing claim 17, Sjöberg discloses a sensor for measuring chloride ion concentration in a medium (title and abstract), comprising

a pair of electrodes (abstract and **2.3 Potentiometric Measurements**); and

a conductive polymer film (abstract – poly(3-octylthiophene)) imprinted for uptake of chloride ions (abstract and **2.2 Electrode Preparation**) under alkaline conditions (**2.3 Potentiometric Measurements** – 2.3.2 Redox and pH Sensitivity and **3.2 Redox and pH Sensitivity**),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (**2.2. Electrode Preparation** and **2.3 Potentiometric Measurements**)

Guiseppi-Elie discloses a sensor for measuring concentration in a medium (abstract and Figure 11), comprising

a pair of electrodes (Figures 1A-C); and

a polymer film (8,10 in Figure 1C and col. 5:4-19) (note that Guiseppi-Elie discloses polypyrrole as a polymer film (claim 7)),

wherein the film is disposed on an electrode of the pair of electrodes for contact with the medium (Figure 1C).

In Sjöberg the film is only in contact with one electrode as the measurement electrode is distinct from the reference electrode. See in Sjöberg **2.3 Potentiometric measurements** on page 821.

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the film in contact with the pair of electrodes as taught by Guiseppi-Elie in the invention of Sjöberg because as taught by Guiseppi-Elie all the electrode elements can be microfabricated onto the same sensor chip "thereby eliminating the need for an externally placed, free-standing reference electrode and an externally placed, free-standing auxiliary or counter electrode. Such a sensor may be readily fabricated as a convenient, low cost, disposable sensor suited to field use." See col. 4:62 – col. 5:2.

As for the film being disposed or contact with the medium see Figure 1C in Guiseppi-Elie.

As for the electrical conductively of the film depending on an amount of chloride ions taken up by the film see in Sjöberg **3. Results and Discussion – 3.1. Sensitivity to Cl^-** on page 822.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guiseppi-Elie (US 5,766,934) in view of Dong et al. ('Chloride Chemical Sensor Based on an organic Conducting Polymer, *Analyst*, October 1988, vol. 113) ("Dong").

Guiseppi-Elie discloses a method for fabricating a sensor for measuring concentration in a medium, the method comprising the steps of

depositing a pair of electrodes on a substrate (Figures 1A-C and col. 5:47-65)

treating the substrate with a silanizing agent to enhance adherence of pyrrole to the substrate between the pair of electrodes (col. 5:66 – col. 7:16);

after said step of treating the substrate with a silanizing agent, placing the substrate in an electrolyte solution of pyrrole (col. 6:3-64 and col. 7:17 – col. 8:7); and

after the step of placing the substrate in the electrolyte solution, applying voltammetry to form a polymer film in contact with the pair of electrodes (col. 6:15-38; col. 7:34-44 and col. 12:11-19.

Guiseppi-Elie does not mention including lithium chloride in the electrolyte solution and applying *cyclic* voltammetry to form the polymer film, although cyclic votlammetry is used to characterize the polymer film (col. 12:19-24).

Dong teaches forming a sensor for measuring chloride ion concentration by appyling cyclic voltammetry to an electrolyte solution comprising pyrrole and lithium chloride. See the abstract and **Experimental – Electrochemical Polymerisation** on page 1525.

It would have been obvious to one with ordinary skill in the art at the time of the invention to use the electrolyte solution of Dong to make the polymer pyrrole film in

Guiseppi-Elie because the resulting sensor will have a fast, sensitive, and selective response to chloride ions. See *Selectivity* on page 1572, last paragraph of **Study of the Response Mechanism** on page 1527 and **Conclusion** on page 1528.

Allowable Subject Matter

10. Claims 4, 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 21-30 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter:

a) Claim 4 requires the film to comprise methylpyrrolye. In Dong the film comprises unsubstituted polypyrrole and chloride ions. See the abstract and Experimental_on page 1525. In Sjöberg the film comprises poly(3-octylthiophene) and tridodecylmethylammonium chloride. See the abstract and 2.2 **Electrode Preparation on page 821.**

b) Claim 9 requires the film to comprise polypyrrolye *and polystyrene sulfonate*. In Dong the film comprises unsubstituted polypyrrole and chloride ions. See the abstract and Experimental on page 1525. In Sjöberg the film comprises poly(3-octylthiophene) and tridodecylmethylammonium chloride. See the abstract and **2.2 Electrode Preparation on page 821.**

c) Claim 10 requires the film to comprise poly-methylpyrrolye. In Dong the film comprises unsubstituted polypyrrole and chloride ions. See the abstract and Experimental on page 1525. In Sjöberg the film comprises poly(3-octylthiophene) and tridodecylmethylammonium chloride. See the abstract and 2.2 **Electrode Preparation on page 821.**

d) Claim 11 requires the pair of electrodes to comprise gold electrodes. In Dong one electrode is a glassy carbon electrode the other electrode is a saturated calomel electrode (Hg, Hg_2Cl_2). See **Experimental - Potential Measurement of the Film Electrode.** Similarly, in Sjöberg one electrode is a glassy carbon electrode the other electrode is a saturated calomel electrode (Hg, Hg_2Cl_2). See **2.2 Electrode Preparation** and **2.3 Potentiometric Measurements**.

e) Claim 21 requires "a transmitter on the sensor platform for transmitting to an interrogation unit a response signal based on a chloride measurement." In Dong and Sjöberg the measurement electrode is a separate electrode from the

reference electrode and thus the pair of electrodes are not on a sensor platform and the conductive polymer film is not disposed in contact with the pair of electrodes. See in Dong **Experimental - Potential Measurement of the Film Electrode** and in Sjöberg **2.2 Electrode Preparation** and **2.3 Potentiometric Measurements.** Guiseppi-Elie discloses providing a set of electrodes on a sensor platform and a conducting polymer over at least two of the electrodes. See the abstract and Figures 1A-C. However, there is no transmitter on the sensor platform. From Figure 1A and the examples one with ordinary skill in the art at the time of the invention would understand that the electrodes on the sensor platform are directly connected to an interrogation unit via wires not through a transmitter on the sensor platform. See, for example, Figure 8B and col. 21:54 – col. 22:4.

f) Claims 22 and 24 depend from allowable claim 21.

g) Claim 25 requires the steps of "placing the substrate in an electrolyte solution of lithium chloride and *methylpyrrole* [emphasis added]" and "after said step of placing the substrate in the electrolyte solution, applying cyclic voltammetry to form a polymer film in contact with the electrode." In Dong "[t]he *polypyrrole* (Ppy) was prepared on a glassy carbon (GC) surface from an aqueous containing *Py* and LiCl using cyclic voltammetry (CV) as described previously [emphasis added]."[10] See the first sentence of **Experimental – Electrochemical Polymerisation** on page 1525.

h) Claims 26-30 depend from allowable claim 25.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
October 16, 2005